

CONTINUED BOTANIZING ON THE WOLF ISLANDS, NEW BRUNSWICK

BY

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Several species of more than passing interest have turned up on the Wolf Islands since our last report (*Rhodora* 66: 413-417, 1964). To make our list complete we shall discuss these and any other new records of vascular plants for the Wolves.

(1) *Typha latifolia* L. During the eighth year of our field work on the Wolf Islands we noticed a small colony of Cat-tail at the northern end of the barrier pond at Southwest Cove on East Wolf Island. We were unable to reach the plants to collect them on that visit because of very high water in the treacherous bog, but in the following year, 1968 we did make collections of vegetative plants and noted that the colony was spreading rapidly. We have visited this pond and adjacent bog many times, starting with nearly our first trip to the islands and even searched in particular for *Typha*, fully expecting to find it since some habitats seemed to us to be ideal for Cat-tails not only here but in other places on both East and South Wolf Islands. Indeed, in one of our papers (*Rhodora* 66: 141, 1964) *Typha* was singled out as a remarkable absentee. It is certainly of the greatest interest that, in the many thousands of years that the Wolf Islands have been available for plant colonization, we should happen to be witnesses to the arrival of a weedy and almost ubiquitous species which almost certainly was not introduced by man.

(2) *Poa subcaerulea* Sm. Specimens of what we call *P. subcaerulea* were first collected by us in open turfy areas above ledges at Southwest Cove, East Wolf Island on July 1, 1964. On June 4, 1968, we again collected specimens in the same locality. When we made our first collections, we didn't recognize the species but we believed we were getting something quite different from any grass we had seen before.

Later at the Gray Herbarium we attempted to match specimens with those in the collection in the genus *Poa* where obviously it belonged. Peter Green, working there at the time, looked over our shoulders at our specimens and suggested *Poa subcaerulea* without hesitation. In early 1968 we sent duplicate material to the herbarium at Kew and under correspondence of April 18, 1968, from Peter Green he quotes Dr. Charles E. Hubbard, the eminent grass specialist, who says of it, "The gatherings are both *Poa subcaerulea* Sm. recognized by the acutely acuminate glumes and few panicle branches." Peter Green in the same letter went on to say that Dr. Hubbard was "very interested to see the specimens and confirm the presence of this species in North America from personal observation."

There is in the Gray Herbarium at the present time a folder of specimens of *Poa subcaerulea* at the end of the genus. We have notes on some nineteen of these collections, many of them made by Fernald and his co-workers during his years of active botanizing of areas about the Gulf of St. Lawrence. These specimens were collected all the way from Labrador to Prince Edward Island and Nova Scotia. The range given in Gray's Manual ed. 8, 1950, p. 117 is "Lab.s to Nfld., M. I. and e. N.B." Whatever the range, whether that given in Gray's Manual or a somewhat wider one following the data in the folder of specimens in the Gray Herbarium, the Wolf Island record is considerable of a range extension all the way from Eastern New Brunswick or from the head of the Bay of Fundy.

There are several points of view about *Poa subcaerulea* that demand discussion. One relevant problem relates to the origin of the plant, whether native or introduced. Hultén, 1958 in "The Amphi-Atlantic Plants," p. 10 states of it, "It belongs to a very critical group, the area of which cannot be given for the present. The most reasonable is to regard it as a European plant introduced in Eastern America and elsewhere." Roland and Smith in "The Flora of Nova Scotia," part 1 of the Rev. Ed. 1966, pp. 84-85, treat *Poa subcaerulea* as part of the *P. pratensis* complex but make

the following pertinent observation regarding its status as a native population. "*Poa subcaerulea* appears to be a native coastal type with bluish-tinged spikelets." We agree with their disposition of it as native but consider it to have more distinctiveness than the color of spikelets. Polunin in his "Circumpolar Arctic Flora," 67, 1959, commenting on *P. pratensis* *sl.* including *P. subcaerulea*, *P. irrigata* and *P. alpigena* states "fully circumpolar in distribution."

From the habitat and occurrence of our Wolf Island specimens we would be inclined, as some others have been, to call the plant native. It seems to us unlikely that *Poa subcaerulea* was brought in from Europe, especially after examining material collected by Fernald and his associates in Western Newfoundland where many of the stations are in wild and remote coastal areas.

The second major problem about *Poa subcaerulea* is its status as a species. In complexes such as that of *Poa pratensis* and its relatives, we ought to consider whether there are distinctive populations that are morphologically unique, are geographically isolated and that presumably have evolved independently. Assuming, as we do, that *Poa subcaerulea* is native along the coast of Eastern America and following Hubbard, Fernald and others, considering it to be morphologically distinct from typical *Poa pratensis*, we are prepared to accept *Poa subcaerulea* as a species that must have evolved out of the *P. pratensis* complex at some fairly remote time. This is further shown by its disjunct occurrence on both sides of the Atlantic. Often the specific lines separating *P. pratensis* from related species are blurred, perhaps largely because of interfertility between the related taxa and consequent introgression. Hybridization is so very common in many plant groups in nature that the great swarms of confusing hybrids, often wrongly interpreted, tend to obscure the evolutionary lines. It seems to us, at this time, that *Poa subcaerulea* merits treatment as a species closely related to *Poa pratensis*.

(3) **Carex deflexa** Hornem. Reported erroneously as *C. Emmonsii* Dew. (*Rhodora* 65: 89, 1963) and discussed as to

its occurrence on the Wolves (Rhodora 66: 144-145, 1964). Our first station, in turf over ledges bordering the sea was very limited, there being few plants. We were fortunate in 1967 to find a more extensive growth of the same sedge in a more inland situation on South Wolf Island. Careful study in the herbarium rules out *C. Emmonsii* for either station and make it evident that we have here the more northern *C. deflexa*. In our 1964 paper (loc cit) we had demonstrated the boreal character of the Wolf Island flora contrasted to that of Grand Manan, the presence of *Carex Emmonsii* being an anomalous and disturbing matter since it might, with more likelihood, have been on Grand Manan because of its more southern affinities rather than on the Wolves. Now that the plant is recognized as *C. deflexa*, which fits the boreal pattern of the Wolf Island flora, our thesis is strengthened. Incidentally, *Carex deflexa* has not been collected on Grand Manan.

The earlier collection named *C. Emmonsii* by error should be changed to *C. deflexa*. It is our *Pike & Hodgdon* no. 17787.

(4) ***Carex pallescens*** L. var. ***neogaea*** Fern. A widely distributed sedge of not pronouncedly northern distribution. We have found this but once in an open area near the southwestern end of the barrier beach at Southwest Cove on August 17, 1967. There are many records on Grand Manan and there is nothing startling about its presence on East Wolf Island, except its extreme scarcity, there being but one plant seen.

(5) ***Rumex orbiculatus*** Gray. Edge of barrier pond at Southwest Cove, East Wolf Island, September 19, 1964. Even at this late time of year the fruits were still so immature that they proved to be nearly useless as aids to identification. However, the valves of the calyx lack teeth or bristles while other features of the plant including the very large leaves and the wet habitat preference belong to *R. orbiculatus*.

(6) ***Heracleum maximum*** Bartr. A single large plant growing beside the stairway leading to the lighthouse on South Wolf, August 17, 1967. We had passed this way many times in earlier years and hadn't seen it. This part of the

Wolf Islands had been occupied more extensively than any other part and probably this merely represents the reappearance of a species that had been there at some previous time and had been dormant at the time of our early visits.

(7) *Solidago puberula* Nutt. A widely distributed golden-rod fairly common on Grand Manan. Only a few specimens were seen on East Wolf Island at the edge of the bog at Paul's Cove on September 6, 1965, the only station we have found on the Wolves. The specimens were small but otherwise quite typical.

In 1964 (Rhodora 66: 413-416, 1964) we provided some statistics on the flora of the Wolf Islands. These we will now revise, incorporating all additions and changes since then.

Table I

Total taxa on the Wolf Islands — 338

	East Wolf	South Wolf	Fat Pot	Flat Wolf	Gull Rock
Comparative areas of islands	42	12	6	3	1
Taxa recorded	302	169	107	96	35
Ratio of taxa to area	7.2	14.1	19.5	32	35

Some changes are also required in the statistics on boreal taxa of the Wolf Islands and Grand Manan. The initial comparison of these two groups of islands showed that the Wolf Islands had 43 boreal taxa of which 33, confined to the Wolves, could be regarded as boreal disjuncts while Grand Manan had a total of only 22 boreal taxa. The boreal *Betula papyrifera* var *cordifolia*, which is very common on the Wolves and which we had reported from Grand Manan (Rhodora 64: 100-101, 1962) should have been added at that time to the Grand Manan list making 23 boreal taxa, of which 11 were shared with the Wolves.

With the further addition of 3 boreal taxa to the Wolf Islands, one of which was shared with Grand Manan (Rhodora 64: 413-416), the total of Wolf Island boreal taxa then would have become 46 rather than the reported 45 and the taxa shared with Grand Manan, 12 rather than 11.

In this paper we are adding 2 more boreal species confined to the Wolf Islands, *Poa subcaerulea* and *Carex deflexa*, bringing the total of boreal taxa on the Wolf Islands to 48, while in the current paper on Grand Manan (Rhodora 71: 306, 1969) one additional boreal species *Salix pellita* is reported from that group of islands and the taxon *Anaphalis margaritacea* var *subalpina* is also newly reported from Grand Manan though found previously on the Wolf Islands. A tabular up-to-date summary of the boreal taxa on the two island groups is given in table 2.

Table 2

Boreal taxa on Wolf Islands and Grand Manan

Total	On	On	Shared
boreal taxa	Wolf Islands	Grand Manan	
60 (100%)	48 (80%)	25 (41.7%)	13 (21.7%)

It is evident that further collecting on the Wolf Islands and on Grand Manan continues to support the thesis that the Wolf Islands have a remarkably prominent boreal element in their flora contrasted to that of Grand Manan.

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